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Z. P.
BUTLER'S SYSTEM OF PHYSICAL TRAINING.

THE LIFTING CURE:

AN

ORIGINAL, SCIENTIFIC APPLICATION OF THE LAWS OF MOTION

OR

MECHANICAL ACTION

TO

PHYSICAL CULTURE AND THE CURE OF DISEASE.

WITH A DISCUSSION OF

TRUE AND FALSE METHODS OF PHYSICAL TRAINING.

The function of a true physician is to prevent and cure disease,
by teaching, applying, and obeying natural laws.

BOSTON:
D. P. BUTLER, No. 19, TEMPLE PLACE.
1868.

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INTRODUCTION.

DEFINING OUR POSITION.

IN laying before the public a new philosophy of physical culture, and a new method of cure, we do not claim that we have comprehended the whole of truth in its relations to the human organism in health and disease: we have simply discovered certain fundamental laws, eternal as the universe, and underlying the possibility of harmonious development and cure, together with the method of their application.

We have thus opened a wide field for investigation and study. These laws are simple, their application complete. The curative power is inherent in the human organism. To develop and increase this inherent power by a proper action of the organs themselves is the only curative method. In development and cure, each individual must "work out his own salvation." There is no vicarious atonement for physical sins, whether hereditary or otherwise, in special applications either of drugs or exercise. Special training, special dosing, the supposed immunity of the person from the effects of transgression of law, resulting from dependence on physicians and drugs, are ruining the world.

AUTHORITIES.

Therefore, in this discussion, we ignore authorities, and fall back upon principles as the basis of our philosophy. Depending as they do only in part upon inherent organic power as the basis of cure, depending rather upon special applications, either internal or external, to effect the desired results, though claiming to be "the regular" profession, the methods of cure adopted by physicians in general have been, of necessity, purely empirical. Hence have arisen the confusion and disagreement which are apparent throughout the whole history of that profession. Believing to-day what they ignored as false a half-century ago, discarding then what a century previous was at the basis of their medical practice, and what, at present, they adopt anew, we can learn little from medical history save the folly and danger of ignoring natural laws, and depending upon special drug medication. But we do not wish to be understood as finding fault with the medical profession: we only contend against certain false ideas upon which the practice of drug medication has, in general, been based. We have no doubt that a large number of diseases and sudden and mysterious deaths are the result of want of equalization, and of medicinal poisons previously administered to give temporary relief.

HOPEFUL SIGNS FOR THE FUTURE.

But the tendency of the profession at the present day is evidently to depend less upon medicine, and more upon

hygiene and exercise. It is the young and inexperienced physicians who give the most medicine to-day. Older practitioners, who are qualified by a larger experience, are depending less and less upon the drug system. From this class of physicians we are receiving much encouragement; and from those who have investigated most fully, unqualified commendation. Undoubtedly, in many instances, they would give little or no medicine, but for the public demand for it. Their position is misapprehended by the people in general. The public would do well to place less reliance on drugs, and pay more attention to the advice of their intelligent physicians. The office of physician will always be honorable and important, because of his valuable knowledge of the human system and of disease; but, as far as possible, we would educate the people, and make each one his own physician.

PHYSIOLOGICAL ERRORS.

Many of the supposed "facts" of physiology and medical science will be found to be errors when tested by the conditions of a natural, healthful, and harmonious development. Much of the philosophy and practice of the medical profession has been based upon cases of abnormal and arrested development; for, as the fundamental law of co-operative and harmonious action has been undiscovered or disregarded, the race has grown up weak, diseased, undeveloped, and imperfect, as a rule. It is evident that any philosophy, based upon this condition of arrested and inharmonious development as

a supposed natural and healthy condition, is liable to decided modifications. It is only by accident that any of its elements are correct. Hence, in this discussion, we have avoided as far as possible the anatomical, physiological, and medical nomenclature. Our words are for the whole people. An empirical system may rest upon the poor props of a language which the people cannot comprehend; but the natural laws of health and development are for all mankind, and all must comprehend and obey them.

TO THE READER.

In presenting this little work to the public, none more than ourselves can be aware of its deficiencies and imperfections. It has been prepared somewhat hastily, at intervals, while treating an average of nearly a hundred patients. It is issued at this time, and in its necessarily crude and imperfect condition, to supply a demand made upon us in personal applications, and through large numbers of letters from all parts of the country, many of them from physicians, who desire to know something concerning the philosophy and application of the new system of exercise and cure. Therefore we trust somewhat to the indulgence of our readers, hoping to present at some future time a more extended and complete discussion of the subject, and believing that the principles herein affirmed, however crude in their statement, are worthy the careful consideration of intelligent and reflecting minds.

THE LIFTING CURE.

BUTLER'S SYSTEM OF PHYSICAL TRAINING, ADAPTED TO STRENGTH
AND HEALTH CULTURE, AND APPLIED TO MEN,
WOMEN, AND CHILDREN.

THE TRUE BASIS OF PHYSICAL CULTURE.

A HUMAN being is made up of organs; and the manifestations of the various mental and physical powers depend upon and correspond with the condition of those organs, whether weak or strong, healthy or diseased. Hence, whatever will secure the greatest degree of strength, vigor, health, and perfection of the physical organization, should be adopted and applied by all, as the first and most important duty of life.

Action is life, power, success. Inaction is failure, impotence, death. Proper action is health, vigor, and the condition of long life. Hence, to comprehend the law of action is the basis of all physical, mental, and moral progress. The mechanical law, the law of motion or

action, is the primary, fundamental law of the universe, man included. The laws of vitality, electricity, and chemical action, originate in and are subject to it. It is the law of creation and destruction, of life and death. As development, health, and longevity are the reward of obeying the laws of man's mechanism, so degeneracy, disease, and premature death, are no less the legitimate punishment of their violation. Hence perfect obedience is at once the highest duty and greatest necessity.

MAN A MACHINE.

Physically, a human being is a machine ; and, being the highest type of organization, is, of necessity, the most perfect machine. The perfect action of the steam-engine depends upon the quality, form, and adjustment of its several parts. These conditions being defective, the action of the machine is imperfect. The same principle applies to man. Perfection and proper adjustment of the parts or organs, obedience to the fundamental law of mechanical action, is strength and health. The reverse is weakness, disease, and premature death. The more perfect the machine, the more delicate in adjustment and complicated in structure, the more serious are the consequences of any violation of the laws of its mechanism. Taking mankind as we find them, weak-

ness and disease is the rule, health and strength the exception. The reverse is the natural order. Hence it is clear that the mechanical, hygienic, and psychological laws which govern man's existence, growth, and culture, are violated. We require, therefore, a system of mental and physical discipline which will put man in harmony with those general laws.

THE RELATIONS OF MIND AND BODY IN CULTURE.

The inter-relations of mind and body are mutual and complete; and any system of culture or cure which fails to recognize this truth must, of necessity, prove a failure. The fact that we have had no system by which we could develop and perfect the body except at the expense of the mind, or the mind except at the expense of the body, is proof positive that we have not heretofore recognized the subtle and intimate relations between these two essential parts of man's being. The beginning of weakness or disease, in any case, may be the result of the violation of either the psychological, hygienic, or mechanical law; and, if not arrested, the end involves the violation of all. On the other hand, obedience to the law of proper action necessitates and includes obedience to the psychological and hygienic laws, and places man in harmony with nature.

MECHANICAL ACTION, SUPERIOR TO MEDICAL TREATMENT.

The philosophy of medical treatment is based upon the adaptation of the remedy to regulate the action, or develop the latent power, of the organs, and thus to resist and overcome disease. Instead of claiming any inherent virtue in the medicine itself, it is allowed to be an enemy, which, after performing its mission, must be expelled to prevent its causing other forms of disease. This is the most favorable view possible of the medical philosophy. Many intelligent physiologists would refuse to admit its title to so favorable a statement of its claims. Of course, the expulsion of the enemy exhausts the already weakened organism, or, what is worse, induces that often fatal crisis, the terror of patient and physician, termed a "relapse."

Now, if by mechanical exercises the action of the organs can be regulated, and their latent power as effectively developed, the gain must be incalculable; as, by this method, no enemy is left to be expelled. Besides, in the proper use of power, the tendency is to add to that already existing by an actual deposit of organic strength. And the effect is general as well as local; all the organs co-operating, the strong and healthy sustaining and invigorating the weak and diseased.

Moreover, it is a truth well known to physiologists, that inaction causes weakness, and weakness precedes disease ; that the liability of an organ to become diseased is in proportion to its properly regulated action and its greater or less strength and vigor. Hence, if weak organs can be strengthened, small organs developed, and harmonious action secured to all, by this method, disease is expelled and power gained by the same process ; thus permanently curing the patient, and fortifying against the recurrence of disease by securing the organic power to resist it, thereby preventing premature maturity and decay, and prolonging life.

WHY OTHER SYSTEMS HAVE FAILED.

Attempts have been made to secure these results through the agency of exercise, but have heretofore failed, or been only partially successful, owing to a lack of comprehension of the great underlying law of co-operative action. All other systems of exercise and cure, as the Swedish Movement Cure, Lewis's System of Light Gymnastics, Calisthenics, the ordinary Gymnasiums, and Ling's System (of which the others are but inferior imitations, so far as they make any pretence to a scientific method), depend upon the special action of the particular organ or part that is weak or diseased.

This system, on the contrary, strengthens the weak organs, and expels disease by a graduated, co-operative exercise of the whole body. The weak organs, by the use of weights which tax their power largely, gain strength, proportionately, more rapidly than the strong and healthy parts, to which the same weights give only a moderate exercise. Moreover, since all parts of the body sympathize, one with another, in health or disease, the weak parts are aided in their effort to become stronger by the increasing vitality of the system in general. Thus the strength of the whole body is augmented and equalized, the weak parts are built up, disease is expelled, and the individual becomes uniformly strong, and consequently healthy.

TRUE AND FALSE METHODS OF PHYSICAL CULTURE.

In discussing the subject of physical training, it is important to ascertain what are the foundations of the different systems of exercise, and their agreement or disagreement with anatomical and physiological law. The tendency of all genuine improvement in physical training is to slow and well-regulated movements with heavy weights, instead of quick and violent movements with light weights. Our experience demonstrates that the former produce harmonious power and correspond-

ing vigor of health ; the latter, irregular development, with exhaustion, and liability to strains and ruptures. Contrary to the impression which has heretofore prevailed, accidents and injuries are peculiar to the use of light rather than heavy weights.

THE PROPER USE OF HEAVY WEIGHTS.

In referring to the use of heavy weights, we do not mean such exercises as have been practised in ordinary gymnasiums ; nor such as are applied to developing special power, as illustrated in the training of prize-fighters and acrobats. These result in an unbalanced and consequently unhealthy condition. This is demonstrated by the fact that they are usually short-lived. Nor do we mean the use of a weight which exceeds the power or endangers the safety of the patient under any circumstances. A weight of ten pounds may be very heavy to one person, while a weight of five hundred pounds is very light to another. Our object is to adapt the weight to the condition of the individual ; to use such a weight, as within safe limits, and without exhaustion, will most effectively call into action all the strength in order to attract and develop additional power.

LIGHT GYMNASTICS UNPHILOSOPHICAL.

The natural order of organic development is, first, power; second, endurance; third, activity. Light gymnastics reverse this order, and are alike mistaken in philosophy, and fatal in results. Invalids are generally excessively nervous and active as well as weak; and, in a large proportion of cases, they are weak because of excessive activity. If they are organically diseased in addition, it should be remembered that disease attacks weak, not strong organs; and that over-action does not strengthen, but exhausts and weakens. Experience and a true philosophy teach that what is gained in speed is lost in power, and demonstrate conclusively that a true and successful system of physical culture must be founded on a reserve of organic strength in the development of harmonious power and permanent health.

Everywhere in nature, the combination of moderation and thoroughness is manifest. Excessive action is the bane of the American people. They need more sleep, rest, and reserved organic power, in proportion to activity, to secure vigorous health and long life. It may be questioned whether light gymnastics would be as objectionable in its application to a nation or race of heavier mould, like the Swedes or Germans, who are character-

ized by a lack, rather than an excess, of activity ; and it is a significant fact, that the system originated with such a people. It is certainly not adapted to the needs of the American people.

OBJECTIONS TO HEAVY GYMNASTICS ANSWERED.

In the proper use of heavy weights, we have a system of development in harmony with the natural order of life ; and the facts of the application of this exercise demonstrate that it is not only true in theory, but successful in results. It will yet be universally admitted that harmony and unity, moderation and thoroughness, are the essential elements in a correct system of physical training.

Yet it is said, "Too much of a good thing may be injurious." This is undoubtedly true of physical exercise, however perfect the system. Absolute experiment has proved that fifteen minutes of exercise with heavy weights is as much as persons ordinarily can endure without exhaustion ; and exhaustion should never occur. As quick movements with light weights are more exhausting than slow movements with heavy weights, the time occupied with the former should be even less than with the latter. Light gymnastics invariably leave the pupil or patient with less strength at the close than at

the commencement of the exercise ; while the reverse is true in the proper use of heavy weights ; the exercises in both cases being in accordance with the best authorities.

The stereotyped objections of the advocates of light gymnastics to the use of heavy weights are both unphilosophical, and contrary to experience, demonstration, and facts. They assert that the lifting of heavy weights tends to stiffen and strain, and is fatal to activity ; that the effect is similar to that seen in the slow and unwieldy draught-horse as compared with the fleet and graceful carriage-horse. But who does not know that carriage and draught horses are not the same, but different varieties ; that they are *born*, not *trained* ; and that no amount of training could reverse or essentially change their natures ? Would these objectors claim that the draught-horse, slow and powerful, is not as true to his nature, as the carriage-horse, deficient in those qualities, is to his ? Or is the draught-horse less useful in his place than the carriage-horse in his ? As we understand this matter, it is not the slowness or activity, the absolute power or agility, that makes the perfection of either : it is simply the highest degree of health and strength *possible to each*, the most perfect development of their respective natures.

So of man. He is constitutionally slow or active. Health, disease, and training are accidental and educational. No amount of training will reverse his nature. Nor is it desirable ; and that system of training is best which will develop the highest degree of strength and health, as that necessarily secures the most perfect symmetry and the proper degree of activity. We never knew a person, who had been properly trained in the use of heavy weights, who was strained, stiffened, or wanting in activity. As teacher and practiser of the system, we have had ample opportunities for observation ; and all our experience goes to prove, that in exact proportion to permanent power, and the corresponding soundness and health which uniformly and necessarily follow, is the degree of activity, endurance, and general physical perfection.

CULTIVATING ENDURANCE AT THE EXPENSE OF POWER.

The popular idea, that endurance is to be cultivated rather than absolute power, is wrong, and may lead to the most disastrous results upon health, and length of life. By the constant cultivation of endurance, previous to a development of organic power, the race-horse is so trained, that he will put forth his utmost strength and speed to the very point of sudden death. So, too, we

often find men and women, in every department of life, who, wanting in power and real health, so task their endurance, that they follow their ordinary vocations with little or no diminution of labor, until their feeble measure of strength is finally exhausted, and they die, the victims of the unconscious violation of Nature's order of development. But, power being first acquired, endurance may be cultivated in harmony with its development ; thus securing perfection of action, with the largest possible measure of health, and length of life.

The beneficent provision of Nature, that power shall greatly exceed endurance in healthful development, is very valuable as a safeguard against utter exhaustion and death. When our endurance fails, we are warned against continuing our exertion, and have still a reserve of power to sustain life. The more harmonious and perfect this relation of power and endurance, the more quickly and sharply are we warned against over-exertion ; even as healthy lungs reject impure air more vigorously than weak and unhealthy lungs. The abnormal development of endurance up to the limits of power may become hereditary, thus subjecting the individual to constant danger, which can only be overcome by a system of culture which shall increase the proportion of his organic power. The cultivation of endurance at the

expense of power is one of the chief dangers of light gymnastics.

OTHER DANGERS OF LIGHT GYMNASTICS.

With slow movements, though the weights are heavy, one is always prepared to restrain action short of a rupture or strain ; while, in quick movements, the action is beyond the control of the person. He knows his liability only when he is injured. There is also a more thorough co-operation, a greater combination of favorable conditions, in the proper use of heavy weights ; so that the strain is equally divided, not concentrated on a single part, on one muscle or organ. In the heaviest of heavy exercises, lifting, the strain being equally spread through all parts of the body, including all the vital organs as well as the muscular system, this co-operation is complete. We challenge any one to produce a single case of serious injury by lifting in practice according to our rules. We have been constantly treating persons who have been injured by the violent, long-continued, exhausting effects of light gymnastics, and have not failed, in a single instance, of radically benefiting or curing them.

We commenced our investigations many years ago, strongly prejudiced in favor of light gymnastics, and

against the use of heavy weights; but have been forced by facts and experience to abandon the light, and adopt the heavy weights. Formerly we considered light gymnastics as harmless, if not beneficial: now we regard them as dangerous, especially as practised by their popular advocates, who evidence a total want of discrimination in applying them in classes, alike to weak and strong, without any especial adaptation to individual diseases, weaknesses, or liabilities.

Not less objectionable is the custom of introducing music, social excitement, and rivalry, all of which act as an injurious and unnatural stimulus, using up the small capital of strength possessed by invalids, through nervous excitement. In no circumstances are coolness, deliberation, self-possession, and complete individual action, more essential than in physical training.

In discussing the merits of the two systems, we do not refer to the abuses of either. Because persons ignorant of all the principles of physical training violate the rules, and improperly use the apparatus, and are injured, we should not use it as an argument against either method. No system should be practised unless the pupil is superintended by a competent teacher. Light gymnastics, as taught by incompetent teachers in our public schools and elsewhere, or as practised from mere

book-reading, and heavy gymnastics as represented by the ordinary gymnasium, may properly be considered as unfortunate abuses, for which no scientific system is responsible. But the two systems, and their results as shown by the claims and practice of those who are competent to apply them, are legitimate material for analysis and argument. To such only do we refer.

HEALTH, NOT RECREATION, THE OBJECT OF PHYSICAL TRAINING.

As we understand it, the object of physical training is to develop harmonious and permanent power and corresponding health. But the popular style of light gymnastics adapts it as a social recreation instead of a scientific health-agency. Were it only a harmless amusement, we should pass it by as such; but, as we have reason to know from abundant testimony and personal experience that it is doing a vast amount of injury, we are compelled, from a sense of duty, to warn others against this popular delusion. All persons having organic diseases, especially feeble and debilitated women and children, should avoid this dangerous and exhausting process. If at all admissible, it is, in exceptional cases, modified from, and to follow, rather than precede, training in the use of heavy weights. We

would test the merits of a system by its results. We believe in the proper use of heavy weights, because they both strengthen and cure. We discard light gymnastics, because, as a rule, they do neither the one nor the other.

DANGER OF USING HEAVY WEIGHTS IMPROPERLY.

The indiscriminate use of heavy weights in exercise, with little regard to the anatomical and physiological laws of the human system, is scarcely less to be deplored than the training with light weights and quick movements. Doubtless, in some cases, any exercise being better than no exercise, individuals are benefited both by light gymnastics and the ordinary gymnasiums. But these are exceptional cases; and, on the other hand, very many are seriously and permanently injured by this injudicious exercise. With little or no instruction, or consideration of individual needs, this could not be otherwise, even if the general mode of application were correct. But ordinary modes of heavy as well as light gymnastics fail utterly to recognize and obey the fundamental law of co-operative action in exercise. Perceiving a condition of weakness or disease in some part or organ of the body, a special exercise or excitement of that organ or part is induced, without

reference to an equal and co-operative exercise of the other parts of the body ; and, when the whole body *is* exercised, it is by a combination of special actions, unequal in their application, and thus tending to produce an unbalanced, and consequently unhealthy, condition of the system. Such are the effects not only of all systems of light gymnastics and calisthenics, but of the ordinary gymnasiums, the German systems, and all methods of lifting by yoke or shoulder-straps.

FAULTS AND DANGERS OF SHOULDER-LIFTING.

The sustaining of heavy weights by the shoulders, an unnatural method of lifting, renders an exact adjustment impossible, fails to bring into action in a co-operative manner the hands and arms, produces an unbalanced condition of the body, and has in all cases, under the instruction of those most competent to apply it, limited development, and retarded the desired attainment of health. The *natural* method of *lifting* weights is by the hands. But Nature has at the same time wisely provided that the body may *sustain* heavier weights than can be *lifted* in this manner. When we endeavor to lift weights by a yoke resting on the shoulders, we are thus violating Nature's law, and endangering the human system in two ways: first, by the raising of

weights heavier than we were intended to lift, disregarding the evident fact that the hands are the natural safeguards against over-action ; and, secondly, by bringing into excessive action, in an unnatural manner, a portion of the body, and failing to exercise properly other important parts, thus injuring the body by unequal action. Moreover, all methods of lifting on the principle of raising one end of a scale-beam, or where the weight is taken abruptly from an unyielding surface, without the use of the spring, render a thorough co-operation impossible ; for it is evident that the greatest effort is at the instant of raising the weight, which, being taken suddenly, of necessity finds some parts of the body prepared to receive it, while others fail to act in co-operation. The weight thus suddenly taken is heaviest at first, requiring less exertion as it rises ; while the contrary is the only safe and natural method of action. In this manner, injurious strains and unnecessary soreness are induced, and the internal action resulting in vital development cannot be secured.

*HAND-LIFTING, WITH PROPER APPARATUS, THE ONLY
CORRECT METHOD.*

But the lifting of properly-graduated weights by the hands, with an apparatus constructed on scientific prin-

ciples, is the only safe, efficient, and thoroughly co-operative exercise. Its beneficial effects have been demonstrated in our practice in hundreds of cases. The adjustment of the weight is so perfect, the action of the spring so effective, that sufficient time is given to secure a completely co-operative action of the whole body; each part sustaining its proper share of the weight, and all acting in perfect harmony. In hand-lifting by our method, as the weight is slowly raised from the spring, it is first received by the leading external muscles; then, through increased co-operation, by the whole external muscular system; then, in order, by the muscular attachments of the vital organs, and the muscular coatings of the organs themselves: so that not only the external muscles, but every part of the system, from head to foot, is called into harmonious and combined action, even to the minutest muscular fibre of the coating of each artery and vein and every internal organ. This action, from its first influence on the leading external muscles to its final perfected influence on the vital organs, is continually increasing in perfection, owing to the more complete co-operation secured at each succeeding stage. Thus exercise in accordance with this system develops power chiefly at the vital centres; the co-operation being more perfect,

and the action more evenly distributed and harmonious, there, than on the external muscles which first receive its effects. The brain and spinal column, as well the other vital organs, partake in this action. But if sufficient time is not taken in the raising of the weight, which is impossible without the use of the spring, it is heaviest at the first effort, requiring less exertion as the effort is continued, thus reversing the natural order. The result is, that a few leading muscles are alone affected, and these become excessively developed while the vital centres are neglected. By the proper method of hand-lifting, we not only obtain complete co-operation by means of the spring, but secure the perfected, powerful action of the dead weight, when the weight is raised above the spring; with the additional advantage of protection against strain and injury, secured by co-operation. Thus we combine every advantage, with none of the disadvantages of dead weight and spring-lifting, in a natural and complete exercise.

COMPLETE DEVELOPMENT IMPOSSIBLE WITHOUT TRAINING.

In a healthy organization, size and symmetry, or quantity, and balance of power, are the first and most important conditions to be secured by training. Then, in natural order, maturity and refinement follow. Com-

plete development is impossible without training, or, in other words, proper mechanical action. A true method of physical culture is as necessary for the body as a correct mode of intellectual culture for the mind. Both are *natural*, provided for in the original constitution of man. As no man can be in the highest sense a natural man without moral, social, and intellectual culture, so none can be truly natural without proper physical culture. We can safely suppose that none but the ignorant will object to scientific physical culture as being unnatural; while many of those forms of exercise which might be considered as natural by the ignorant are really violations of natural law,—a kind of physical drudgery pertaining to our unnatural and imperfect condition of life.

Physical training should commence with childhood; and the kind of exercise should be in harmony with the natural and fundamental law of youth, which is development, or growth. The proper use of heavy weights is the agency for developing size; while slow and co-operative action secures the next important condition,—balance, or symmetry. Hence we find that those who have been trained in light gymnastics do not develop power as successfully as those who have never trained at all. Thus the use of light weights and ordinary modes of heavy

gymnastics produce certain conditions which limit development; as, by these methods, only the external muscles are developed, at the expense of vital power and symmetry. As, in all things, size, other conditions being equal, is the measure of power, any thing which limits *harmonious* development must necessarily be objectionable.

DANGERS OF EXCESSIVE MUSCULAR DEVELOPMENT.

In all these false methods of physical culture, the tendency is to develop large external muscles, especially about the extremities. Many young men, totally ignorant of the laws of exercise, commence training with a desire to secure this excessive and abnormal limb and muscular development. So also, by a leading method of light gymnastics now common, especially among our young ladies in their boarding-schools, aided by pedestrian exercise, a great development of the lower limbs is produced, necessarily at the expense of vitality and true symmetry. If the power thus expended were applied to increasing the size of the contracted waist and chest, and the power of the vital organs, we should hear of fewer instances of premature sickness and death among the pupils and graduates of these institutions. But, if this abnormal development is the object of physical

culture, it is easily obtained. We have only to apply a series of long-continued limb-exercises, with sharp, severe action of the leading muscles, and we shall thus secure an excessive development in these directions ; but the result is inevitably injurious. By an abnormal development of the limbs and leading muscles, the vital centres are robbed of their power, and the doors are thrown open for the entrance and development of the long train of diseases to which the human system is liable. And, when a person thus trained is attacked by disease, the power needed to combat it, instead of being present at the vital centres, is drawn away to the extremities. Hence the liabilities to a fatal termination of the disease are greatly increased. In confirmation of this, we find acrobats, prize-fighters, and all cases of abnormal muscular development, short-lived and unhealthy, as a rule. When attacked by fevers and all acute diseases, to which they are especially liable from their lack of vital power to resist them, for the same reason they sink rapidly, and die suddenly. But a proper system of training will develop power primarily at the vital centres, securing a subordinate but harmonious muscular development.

BASE-BALL, BOATING, AND HORSEBACK-RIDING.

In this connection, we may say a word respecting some other forms of irregular exercise common among our young people at the present day. Within a few years, the game of base-ball has become very popular among our young men. In so far as it leads them, for a time, away from sedentary and in-door occupations to the open fields, where they may obtain the healthful influences of pure air and sunlight, it is well; but the exercise is in itself violent, long-continued, and exhausting in its tendencies, as is evidenced by the frequent and severe bruises and injuries — often serious in their nature — received by its devotees. If one-half the accidents and injuries due to the violence, excitement, and rivalry of this game, could be laid at the door of any system of training, such a system would justly be denounced by physicians and the public in general. As an exercise, it is partial, excessive, and long-continued; tending to abnormal development, and to the cultivation of endurance rather than absolute power. It is allowable, if at all, only to robust and healthy persons; and such should engage in it only moderately. Its results are an unbalanced condition of the muscular and vital system; and these tendencies can only be

counteracted by a proper system of training, whereby equilibrium may be restored.

Boating, while less dangerous and violent in some respects, still tends to excessive muscular and limb development at the expense of the vital centres, and can safely be practised only in connection with and following a proper system of general training. In general, that method of rowing which secures the most thorough co-operation of all the parts will be more successful than any other. This is why the Harvard oarsmen, and Kelly, the champion of England, with their long stroke, and co-operative action of the lower limbs, have been so successful, when opposed to the short, quick stroke in rowing. We would also suggest, that open-hand rowing, depending upon the individual action of the separate sides of the body, cannot cope with the co-operative and steady stroke with crossed oars.

As systems of exercise, all these and similar forms are imperfect at the best, and dangerous in many respects ; but, if it is desired to attain the highest perfection of skill and power in either, a previous course of training in accordance with our system will enable one to be far more successful than would otherwise be possible. The power gained by proper training may be used in any way desired by the pupil. Without this power,

these violent and long-continued exercises cannot fail to produce injurious results.

Horseback-riding, as an exercise, has become very popular among both ladies and gentlemen, and is frequently prescribed by physicians to certain classes of invalids. It is less violent than the other forms of exercise which we have mentioned; and by bringing the patient into the open air, where he may obtain the healthful influences of sunlight and change of scene, it may, in many instances, be beneficial in its results. Like other forms of irregular exercise, it is often continued so long as to become an exhausting instead of an invigorating agency. This danger should be carefully guarded against. But no partial and irregular exercise can be as safe, or produce as favorable results, as the scientific, co-operative application of the law of mechanical action. Invalids, especially, need an exercise which shall obey every physiological law, and violate none; otherwise we cannot expect to produce the best results in the treatment of disease or the development of power.

PEDESTRIAN EXCURSIONS.

Walking, as well as riding, should be practised with moderation. In long pedestrian excursions, the exer-

cise of walking becomes exhausting, tends to muscular development of the lower limbs, and may, in connection with the change in dietetic habits incident upon it, and the tendency to excessive eating when the exercise is no longer taken, more than counterbalance the beneficial effects of pure air and change of scenery, and prepare the way for typhoid-fevers and similar forms of disease. Co-operative action in walking, when the whole body assists in the exercise, and the arms are allowed to swing freely by the side, is safer and more beneficial than the maintenance of a stiff, unnatural, and constrained position. By excessive and unequal action in walking, especially when long continued, functional derangements are induced, equalization is disturbed, power is drawn from the vital centres, and disease more readily takes hold of the system. In all cases, moderation should be maintained ; and, for exercise, only a proper system of co-operative action can produce the safest and most desirable results.

DANGERS OF OVER-TRAINING BY ALL SYSTEMS.

In all systems and forms of exercise, one of the chief dangers is in over-training,— the production of excessive and long-continued action. No system, however perfect in other respects, can be free from this liability,

unless proper cautions are observed by patient and instructor. By causing one to lift rapidly, and a great number of times, we could produce exhaustion and fatigue at every exercise, and consequently reduce the vitality instead of augmenting it. Hence the utmost care should be taken never to allow the pupil to exercise beyond the point of conscious invigoration. In this way, a continual gain in power will be maintained, which may be applied in the cure of disease, or in whatever pursuit of pleasure or profit the person may desire to use it. But in all the ordinary forms of exercise, as boating, base-ball, walking, and horseback-riding, the tendency to over-exertion is universal. If the exercise usually taken in these forms were reduced one-half, more benefit would be derived from it.

PROPER TRAINING A REVOLUTION.

When a person goes into training, he goes into revolution ; and, if abnormal conditions exist, he will pass through the revolution of disease as well as of development; for he cannot add to the power of his organs without a tendency to use that power to expel whatever disease may be lurking there. The entire disease may only be expelled by the utmost of power. Therefore the revolutions of development, and the cure of

disease, go on hand in hand till the maximum power is attained. Then, in natural order, comes the reward of obeying the fundamental law in reference to development,—freedom from disease, capacity to enjoy, with the additional luxury of the refining of that power, or the ripening peculiar to healthy age.

NECESSITY OF GRADUAL DEVELOPMENT.

Man is a machine ; and, in training, he must be called into action in accordance with the principles of his mechanism. One of the essential rules in using machinery safely and efficiently is to apply very little power at first ; the primary object being to call the parts into slow, harmonious, co-operative action. Having started the machine, and secured the general co-operation, then a little more power is added to increase the speed ; then a little more, until such a degree has been attained as the strength of the machine will warrant. It is possible to run a locomotive at the rate of a mile a minute : but it does not pay ; it wears the road and the machinery to a degree which no receipts, however large, will justify : the ordinary rate is thirty or forty miles an hour on good roads. So that which is the law of safety and success in the application of inorganic power is the law of economy in a still higher degree in the

development of the human system. Hence, when a person begins training, he should use weights largely within his power, and increase them moderately, taxing his strength a little more in proportion as he advances from week to week; and not until he has been in training at least three months should he presume to use all the power at his command. It takes fully that length of time to insure that complete co-operation and the use of all the parts which enable them to perform their functions properly in the use of power in co-operative action. This applies equally to the use of weights in lifting, on the pulleys, and in the dumb-bells. The amount of weight determines the power of action of the organs; but the manner of using that weight determines the kind of effect.

TRAINING TO RECOGNIZE THE PERIODIC DEVELOPMENT OF MAN.

We have said that training should commence in youth,—as soon as the pupil is intelligent enough to comprehend his instructions, and exercise with proper regard to the laws of action. In training from youth to age, we should recognize Nature's intentions during each period of development, and modify our action so as to assist the natural processes of growth and change,

instead of opposing them. In infancy and early childhood, Nature is developing the vital organs of the body, rather than the brain or muscular system: hence the method of training should be in harmony with this natural tendency. Contrary to the general understanding of the subject, light exercises and quick movements are not adapted to this period of life. We have seen that the result of such exercises is to rob the vital centres, and distribute the power to the muscles and extremities of the body; while a proper regard to the physiological needs of the human system would demand the contrary result. Such can only be produced by the judicious application of the law of mechanical action in the use of heavy weights. Whether in childhood or a more advanced period of life, the proper use of heavy weights tends to prevent abnormal activity: hence excessively active persons especially require proper training in accordance with this law. But it is even more important for children to have the proper kind of exercise than maturer persons. Many of the diseases peculiar to infancy are induced by excessive activity in play. Great care should be observed in guarding against this danger.

It is often alleged as an argument against the necessity of gymnastic training for young children, that they,

like the young of all animals, will naturally take the kind and amount of exercise which they require. On the contrary, all experience proves that young children are inclined to exercise too violent in its nature, and so long continued, that it becomes exhausting in its effects. But proper training will afford them sufficient exercise, invigorating instead of exhausting; and will allay the appetite and desire for that more violent exertion, which can only result in weakness, nervousness, and the early development of disease. It may even be questioned, whether, in the training of young animals for domestic labor, better results would not be attained by the early application of systematic culture in drawing heavy weights; thus satisfying their desire for exercise, and preventing that excessive action which must result in an unbalanced condition, and detract from future power and usefulness.

Neither should the power of the young child be directed by mental application to the increase of brain power. A forced action of the brain in study before the age of fourteen years can only result in injury, not only to the vital power and health of the child, but also to the brain itself. Our American youth are too precocious in their brain development. The result is, that life is shortened, the mental powers are weakened, and future

usefulness is fearfully impaired. Especially should our American girls be guarded against the dangers of a forced activity of the brain between the ages of seven and fourteen years.

Through this brain-action, vitality is rapidly exhausted, and the system prepared for consumption, and that long train of nervous disorders which are the bane of New England. More potent, as a cause of consumption, than the influences of climate and atmospheric changes, is the effect of this terrible drain upon vitality in the restraining, forced, unnatural system of culture applied in our public schools.

If, on the contrary, the energies were turned into the natural channel of vital development, the power of the brain itself would be increased, and capacity to learn at the proper time secured; so that, at maturity, not only would the person have a healthier physical organization, but his mind would be stored with a greater amount of useful knowledge. Then, in the periods of muscular and brain development, the system of training should be such as will render this action still subordinate to the security and maintenance of a proper degree of power at the vital centres, the brain and spine included, thereby preventing too great a drain upon these parts. The brain, being the organ first

formed, and the last to be assaulted by disease, especially needs the protection afforded by a system of culture which shall develop vital power.

In old age, when Nature is striving to preserve the physical powers and to lengthen out life, we may still aid her by a proper system of training. By co-operative exercise, the forces are equalized, and the utmost possible length of life secured. So also, in the training of the sexes, we should have reference to their difference in physical constitution, and, in all cases, to their periodicity of development and functional changes.

If, by reason of want of vital power, or a forced, unnatural system of culture, this natural order of development is interfered with, when the person commences training, and develops a greater degree of power, this is at once directed to the perfection of the physical organization. Nature will never rest contented until her processes are accomplished; and when she has been restrained, and development has been arrested, with each increase of power she will surely apply it, in the natural order of progress, to the completion of the work already begun. If other processes are now going on, they may be arrested until this result is accomplished. Thus, through a series of actions and re-actions, a natural order of development is commenced and carried on until the desired end is reached.

THE ORDER OF DEVELOPMENT AND CURE.

We have said that the first result of the exercise is to equalize, the second to invigorate, the third to reconstruct and build up the tissues of the body. In the process of continued training, these results are inevitable, and they necessarily involve the expulsion of whatever disease is present in the system. With equalization and invigoration, among the first apparent results of the exercise is the securing of a more perfect circulation throughout the tissues, and toward the surface, of the body.

BEAUTY AND ENERGY RESULT FROM PROPER TRAINING.

The skin, which had been clogged with decaying matter, yellow with bile, or white for lack of capillary circulation, acquires the natural glow and color of health. Though the patient may not increase in actual weight, the face becomes fuller, and rounder in its outlines (the uniform and natural indication of vigorous vital organs), and acquires that beauty of form, and lively and animated expression, which can only result from healthy physical, mental, and moral conditions.

Nor is the effect upon the general tone and character of the mind and will less apparent. The vacillation and weakness peculiar to an unbalanced condition come to

an end. The step is firm, and the will determined. Consciousness of power underlies and promotes all the elements of a perfect manhood and womanhood. Persons who have vainly grappled with health-destroying habits, or who, in consequence of the weak and abnormal condition of their mental faculties, have had no desire to resist them, may now oppose them successfully. During our practice, we have had many patients who have given up the use of tobacco and intoxicating drinks, who had tried and failed in their previously weak and diseased condition.

AN UNERRING DIAGNOSIS OF DISEASE.

As weakness precedes disease in every part or organ of the body, and as the body is practically no stronger than the weakest part, a thoroughly co-operative exercise will detect and point out the weak and diseased organs with unerring accuracy; and with the development of a sufficient degree of power, varying in different individuals according to their natural constitution, strength, and susceptibility, the curative process is begun. The patient, who has at first experienced the grateful effects of equalization and invigoration, may now develop a degree of soreness and pain in the diseased organs, or their nerves, reporting in other portions

of the body. At the same time, the disease, if chronic, becomes acute in its symptoms; the system is aroused to unusual action; and what we term a crisis of the disease is produced. The patient's power, developed by systematic culture, is now turned, in a natural and orderly way, to expelling it from the system. This is indicated by the fact that the patient is unable to lift his heaviest weights with as great ease as formerly,—frequently unable to lift them at all. Upon the development of this condition, the attendant physician should allow the patient to use only such weights as are fully within his power, regulating the action and varying the application according to the symptoms as they are developed from day to day. The power of the patient should not be tested to the utmost until the curative process no longer requires it for the present; which is indicated by an increase of general vigor, and a tendency to lift heavier weights.

NECESSITY OF CAREFUL TRAINING.

This crisis, or conflict of strength with disease, though seldom forcing the patient to neglect his usual vocations, should be watched carefully, and the weights varied according to the symptoms and needs of the patient. It is impossible, in any save a purely empiri-

cal system of cure, to give specific directions for the treatment of every case. As the natural constitution, temperament, present condition, complication of diseases, degree of strength, and symptoms, differ in every case, a different course of treatment, suitable to these various conditions, is in each case necessary. Hence only a thorough experience in the application of the exercises, with a good degree of knowledge of the human system in health and disease, will warrant a person in attempting the application of the lifting cure to invalids. If, in the ordinary training of persons in health, the right use of weights is essential to success, how much greater is the necessity of a large experience in the training of invalids !

In nearly all diseases, the human system is unnaturally susceptible to all external influences: hence the nicest possible adjustment in application and degree of weights, varying in every case with the symptoms and according to the desired results, is of the utmost importance.

THE TREATMENT OF CHRONIC DISEASES.

In the treatment of chronic diseases, the expulsion of poisons and all morbid matters long retained in the system, when acute symptoms are developed, the condi-

tion of the patient varies from that in ordinary acute diseases, owing to the great amount of strength inherent in the system, resulting from proper training. Hence persons may and do pass through severe crises without departing from their ordinary routine of business or pleasure. In the result, the system is purified from disease ; the morbid matters, sure seed of contagion, fever, and premature death, are expelled from the system ; the patient, instead of being made weaker, is made stronger, by the process, and is protected against relapse and subsequent assaults of disease by his greater degree of organic power. His vigor of mind and body is greatly increased ; and he enters upon his daily duties anew, with prospects of longer life, business-success, and greater usefulness in whatever avenue he may enter.

THE REPETITION OF CRISES.

If, as is the case in most organic diseases, a single process, or crisis, is not sufficient to the complete eradication of the disease, with another addition of power a new crisis is developed ; and this process is repeated again and again until the system is thoroughly purged from disease. Time is an important element in the application of the treatment ; and an experienced instructor will not urge forward the patient to the develop-

ment of a new crisis until he has had time to gain the necessary power to properly control the action without great exhaustion and inconvenience to the patient. To prevent this increase of disease, and establish the general curative tendency, is the first object; then to patiently persevere until complete soundness and permanent health is secured. In the successive development of crises, the weakest part or organ of the body is first affected. When this becomes strengthened, and disease so far eradicated, with the succeeding increase of power the next weak organ is affected and strengthened in a similar manner. If the order of Nature allowed a sufficient development of power to attack the whole measure of disease in a single crisis, or effort, there are few persons badly diseased who would be able to withstand the revolution. But action according to law is always beneficent. Thus, by a succession of crises, organic revolution is gradually produced, and the patient is protected against the danger which would accompany a more violent action.

In all cases, regular, slow, and thorough training is preferable to a more rapid and forced development of power. But in this, as in other particulars, the attendant instructor will be guided by the condition of the patient, the time given for treatment, and the results to be produced.

THE CURE OF ORGANIC DISEASES.

In thus claiming to cure disease, we use the word "cure" in its ordinary acceptation. There may be differences of opinion among physiologists as to whether real organic diseases can be completely cured; but there is no doubt that they can be reduced to a minimum, so that their liabilities to encroachment upon health and life are scarcely more than in case of absolute cure. At every step of the constant increase of organic power developed by training, the disease is brought under more perfect control, with ever-increasing tendencies to complete eradication. Hereditary diseases remain many years, and often for life, in the system, in a germinal condition; but, on the contrary, always develop and crop out when the person becomes sufficiently weak. Cancers, tumors, and, in general, all humors of the blood, morbid matters accumulated in the system for want of organic power to resist and expel them, appear in a malignant form only when invited by a weak and debilitated condition of some part of the system. With sufficient power, Nature would have expelled them gradually through the ordinary channels. This power is given by training; and their acute manifestations are thus prevented. It becomes an interesting question,

whether this building-up of the tissues, and developing of organic power, by proper training, especially if applied in the first stages of the disease, may not supersede the application of surgery. We have no doubt, that, in many cases, such would be the result.

BROKEN BONES, WOUNDS AND INJURIES.

In all cases of injury to the person, when the application of the treatment is possible, a systematic course of training should be adopted. The increased power, and more perfect circulation, will assist the processes of Nature, relieve pain, and effect a cure, much more surely and rapidly than by ordinary methods. In accordance with the principles by which chronic diseases are cured, in cases of injuries which occurred long before the patient commenced training, and which were healed to the extent of the power then existing in the system, there will, with every decided increase of power developed in training, again be manifested acute symptoms, and the healing process will be renewed, until, finally, the part affected becomes equally strong and healthy with other portions of the body. We have had many instances of this kind in our practice, where injuries long forgotten have been developed, and the previous partial cures made permanent and complete.

THE TREATMENT OF ACUTE DISEASES.

Still other conditions enter into the treatment of acute diseases by this method. In the early stages of all acute diseases, contrary to the common supposition, and usually to the feelings of the patient himself, we find him in possession of an unusual degree of power. Nature has rallied all his strength in the kindly effort to relieve his system of disease. If the patient is untrained, we have, as far as possible, to neutralize the unfavorable tendencies of his want of power and equal action, and to regulate and properly control the disease, and prevent it, if possible, from assaulting the vital centres. This is accomplished, in the main, by equalization, the first effect of the application of this exercise. Here, even more, if possible, than in the treatment of chronic diseases, are thorough competence and experience in the attendant physician essential. To protect the public from the results of malepractice in the hands of incompetent persons, our apparatus is secured by patent rights, and is sold only under such restrictions and limitations as will insure its public application only by persons whom a course of study in the philosophy and application of the system have rendered competent to apply it. We have, as a result, a safe, efficient, and natural method of

cure, radically different from all other systems, in harmony with the constitution of man and the laws of health and development.

TREATMENT OF CASES OF EXTREME PROSTRATION AND DEBILITY.

While the proper application of this treatment, in health, is the most perfect safeguard against weakness and disease, and while, whenever its application is possible, it is the most complete and potent agency for the cure of acute diseases, there may be and are sometimes instances where the patient is unable to maintain the proper position in lifting weights. In such cases as these, the passive movements of the Swedish movement-cure may be of great value. Proper action is essential to the recovery of power and health; and if, by passive movements, the system can be aroused to action until sufficient power is gained to enable the patient to avail himself of our more thorough and co-operative treatment, the movement-cure, with the application of water and other hygienic agencies, becomes an important element in the treatment of these and similar cases.

Ling and his followers are entitled to much credit for turning the attention of the public and the medical profession to the application of exercise to the cure of dis-

ease, and for making the first effort toward a scientific application of the law of mechanical action. While his system, in general, cannot compete successfully with a more co-operative exercise with heavy weights, it is nevertheless valuable in the treatment of acute diseases where the other cannot be at once applied. But, at the earliest opportunity, our method of treatment should be adopted. We have even allowed the patient to lift, on weights adapted to his condition, when he required to be supported in position by his attendant.

In these cases, also, hydropathic treatment is often effective. Priessnitz and his followers have done much in turning attention to the natural system of cure, and away from the errors of drug medication. Its influence has been so potent, that even allopathic and homœopathic physicians have adopted it, to a great extent, in their practice. The chief need has been a greater degree of organic power, which is furnished by our method, and becomes a valuable aid to all systems of remedial treatment.

THE TREATMENT OF INCURABLE CASES.

We do not claim to perform impossibilities. There are, of course, cases which are incurable by any system. Yet, even in such cases, the value of this exercise, prop-

erly applied, can hardly be over-estimated. In some cases of consumption, and other diseases, where the patient is beyond hope of cure, the power of the body becomes equalized; pain is relieved; hemorrhage, if it occur, made less frequent, or prevented entirely; and thus life is prolonged to the greatest possible length: and when, finally, the patient must die, he sinks frequently into a painless, peaceful slumber, and death is rendered easy and natural. This is in reality the development of a premature condition of maturity, rendered necessary by their debilitated and diseased condition consequent upon previous violations of law. By a return to obedience, Nature *forgives* the sin; but no power can remit the punishment. In every case of this kind which we have had under our treatment, the result has been uniformly of this favorable nature. The patients have lived much longer than intelligent physicians have deemed possible, and the last moments have been calm, and free from pain.

*DISEASES INCURABLE BY OTHER METHODS MAY BE CURED
BY THIS.*

It does not necessarily follow, because patients have been pronounced incurable under other treatment, that they may not obtain relief, or even permanent cure, by

a proper mode of physical training. We have had many cases of this kind, where our treatment has proved successful when the most skilful medical practitioners had failed to effect a cure. We claim, that in all curable cases, including many which are incurable by other methods of treatment, by the proper application of the fundamental law of mechanical action, and obedience to all other hygienic and natural remedial agencies, we are enabled to lead the patient to a more perfect conformity with Nature's laws of development and cure; which is the only method by which disease can be radically overcome, and a healthy condition securely established. In other words, our system is based upon the truth, that health depends upon the power and proper action of all the organs of the body, and the most perfect obedience to all the laws of God; that human art can devise no other way to secure it; that no other road leads to it from a condition of disease. To discover and obey these laws is the only method of cure.

HYGIENIC SUGGESTIONS.

While the results of proper training as taught by the instructor, and proper application of the power thus gained by the pupil, cannot be otherwise than favorable in the highest possible degree, there are modifica-

tions of the effect of this culture on patient and pupil which demand attention. He who obeys the fundamental law of mechanical action does well; but he does better who endeavors to comprehend all of Nature's laws affecting health, and to obey them.

To afford proper nutriment in building up the tissues of the body; to breathe pure air by day and at night; to wear clothing properly made and adjusted to the body; to keep the pores of the skin open, and free the body from impurities by a correct system of bathing; and to allow the entire body to experience the vitalizing influences of contact with sunlight and air, unimpeded by external covering,—all these observances are of great importance in restoring health from a diseased condition, and in preventing the approaches of disease. In spite of the violation of these laws, we may often accomplish much; but with obedience to them, and to the law of proper action, a cure is rendered certain in all curable cases, and progress is in all instances more rapid. In many cases of severe invalidism, failure to obey these laws may turn the scale against health, and in favor of disease.

DANGERS OF ARTIFICIAL STIMULATION.

Resorting to artificial means to prompt an over-tasked and exhausted body and brain to perform the customary task, or increased labor to meet some emergency, is a common but most dangerous and frequently fatal mistake. Physicians too often fall into this error, advising the patient who is deficient in vital and nervous power, and complains of weakness, loss of appetite and courage, to eat heartily and often, to partake of highly concentrated food,—meat, wine, whiskey, and the like,—when nothing is more certain to increase his difficulties as the ultimate, permanent result. Excessive eating always breaks down the tissues of the body, and renders a cure difficult, if not impossible. Many physicians, as well as their patients, have yet to comprehend the law thus violated, and the difference between a temporary relief and functional stimulation, and an actual increase of organic power and permanent health which naturally flows from it. Invalids, and those who are beginning to manifest the premonitory symptoms of invalidism,—vital and nervous exhaustion,—should pursue precisely the opposite course. They need *rest*, not labor, for both mind and body. They should eat less and work less, change both diet and employment, secure equalization

by proper invigorating exercise, and recuperation by change of scene and absolute rest; thus increasing the life-power and health on the basis of strengthened and purified organs and equalized action.

It has usually been supposed that the eating of considerable meat, and the use of stimulants to a greater or less degree, is essential to the development of a high degree of power. There may be a difference in the requirements of different individuals respecting the amount of meat, vegetables, and other kinds of food, to be eaten by each; but our experience leads us to the conclusion, that all food and drinks of a merely stimulating nature should be avoided, as spices, condiments, tea, coffee, and all intoxicating and fermented liquors. Pastry, condiments, confectionery, tobacco, and drugs cause a large percentage of sickness and premature deaths.

A CORRECT DIET.

That which is eaten should in all cases be nutritious. Vegetables should rarely be eaten. Meat, when eaten, should be fresh, and usually taken in moderate quantities, and not too often. The flesh of the hog, and all fat meats, should be avoided; also pastry, bread raised by yeast or soda, and all articles made of fine flour. Bread made of wheat-meal, containing every element of the

natural grain, without yeast or salt; ripe fruits; fresh beef and mutton; wild game and venison; with bread or puddings, plainly made, of rye, oat, or Indian meal,—are to be preferred. Tobacco and narcotics of all kinds should be avoided. The meals should be eaten at regular hours, and sufficient time should be occupied in eating to secure thorough mastication and salivation of the food. A stimulating diet favors a forced and unnatural development, and must be followed by a corresponding re-action.

Simplicity in food, both in the manner of its preparation and in partaking of very few articles at the same meal, is important as a rule of diet. Invalids may properly be confined to a single article at a meal. A great variety of food promotes over-eating or gluttony,—a universal fault of the American people. In this way the digestive organs are over-loaded, and are unable to perform their work properly. Hence the system receives less nutrition than would be derived from a smaller quantity of food. The question of diet is still open, and we cannot as yet affirm an absolute rule by which all may be governed. The tendency among those whose investigations have been most thorough is evidently toward using less meat and stimulants. It is the object of all to ascertain how much and what kinds of food will give the most nourishment to the system. This is the only point of dispute.

A proper regulation of the diet is in itself always important in the cure of disease and the preservation of health ; but it is far better for a proper diet, and the acquisition of power by a proper system of training, to go hand in hand. Indeed, with proper training, which tends to secure regulation not only of vital and functional action, but of all the habits of body and mind, a regulation of diet is easy where it has before been difficult. Acting as it does most effectively in aiding the processes of digestion, dyspeptic tendencies are removed, and all kinds of food are more easily digested and assimilated. It is well known that general conditions of strength and health, weakness and disease, modify the effects of food on the system. This fact, and the differences of people in their constitutions, appetites, habits, education, and the circumstances of climate, locality, and employment, are sufficient to account for the differences of opinion among physiologists and health-reformers on the subject of diet. A correct and infallible rule can hardly be based on abnormal and diseased conditions ; but it is evident that the appetite will be more natural and trustworthy as a guide when the system becomes healthy, and organic action is properly regulated by a correct system of physical culture. This, then, is the first thing to be secured.

DIETETIC EXPERIMENTS.

While we would nourish the body properly, that its growth may be natural and healthy, we object to fostering that kind of mental dyspepsia which renders man the slave of his stomach in the application of a rigid diet. Dietetic experiments on a weak and diseased body are always dangerous, and can never lead to trustworthy conclusions. *Power* is the first condition of health. To gain *power*, then, should be the primary endeavor of every one in search of that blessing. Rather than weaken the body by systematic starving, we would say, "Eat any thing, so that your organic power is increased." First power, then purity, is Nature's order of development; and he who strives to reverse this order will weaken and die before he acquires either purity or power. But fasting is not starving; and fasting is occasionally useful in promoting purity, and giving rest to the digestive organs. Fasting, instead of stuffing, is the proper way to improve the appetite.

OTHER AIDS IN SECURING HEALTH.

Sun, air, and water baths properly applied, are very valuable agencies in a natural method of cure; but too

frequent bathing becomes a weakening process, instead of a producer of health and strength. Especially should we guard against too great frequency in applying Turkish baths, and baths of very warm or very cold water. Although they are valuable agents in promoting purity of the body, they should be applied judiciously, and not often enough to produce too great relaxation and weakness. In this way we have known sickness, and even death, to be induced. It is of the utmost importance to every person, particularly to every invalid, to secure a proper amount of sleep. The American people, from their excessive mental and nervous activity, usually sleep too little; but by equalization, through proper training, this tendency may be corrected, and rest made natural and easy. Children and old people need more sleep than persons in the prime of life; but nearly all need more than they obtain. There are, of course, exceptions to this general rule. We are not in favor of dozing one's life away from want of energy; but a proper degree of activity demands also a proper amount of sleep and rest. The natural time for sleep is, of course, night, instead of day. At night, the light, heat, and electrical influence of the sun, tending to promote mental and physical activity, are withdrawn; and all the conditions are favorable to repose. We cannot

violate the order of Nature with impunity ; and if we value health, and length of life, we must secure sufficient sleep at the proper hours.

Great aid may often be given to the patient by rubbing his body with the hands of a healthy person in sympathy with him ; thereby a healthy magnetic influence is imparted, aiding to equalize and soothe.

The wearing of clothing so made that the natural processes of respiration, digestion, and circulation, may not be impeded, is very important, particularly to children and women. Our society, especially the female portion, requires a radical reform in the matter of dress ; and our children cannot be protected from disease and death while their dress leaves the extremities unprotected from atmospheric changes and severity, even in the coldest weather. Until we comprehend and obey these laws, we cannot expect to become a healthy and vigorous people.

NECESSITY OF THE PROPER USE OF POWER.

The perfect work of the physician and instructor is not the only element essential to a cure. Through a perfect system of training, development of power may result ; but unless this power is directed in its proper channel, unless it is applied to the curative process and

becomes permanent, it is possible to shorten life instead of promoting longevity. Health and strength should be the primary object; pecuniary gains secondary, and as a result of sound organic condition. But if an ambitious invalid uses immediately, to its full extent, in the labors of business and the pursuit of wealth, the power developed by training, thus turning it from the natural channel of cure, nothing is surer than that dangerous conditions will be produced.

The use of the strength he originally possessed has been necessary to the acquisition of greater power. To this he has applied it; and, if this greater power thus gained is at once wholly absorbed in business or the pursuit of wealth, it requires only a simple mathematical calculation to prove that the patient would soon become bankrupt in strength, and his condition would be more dangerous than before.

Physicians and instructors should note well that point, and carefully guard and instruct their pupils in the philosophy of cure. But nothing is surer than that this power, properly applied, will eradicate disease, build up the tissues of the body, and, by securing conditions of organic soundness and vitality, life will be prolonged beyond the present probable duration.

The curative power is not to be found in drugs or

other outward appliances. It is inherent in the human organism. It is only by developing and increasing this organic power by a correct system of physical culture that a cure of disease is possible. In spite of our constant transgressions of Nature's laws, she is ever striving to neutralize the effects of our errors, and to make us wiser and more healthy. We have only to meet Nature half-way to become constant in progress toward physical, mental, and moral perfection.

TIME AND SEASONS IN TRAINING.

The time essential to the complete eradication of disease varies, of course, with its nature, extent, the constitution of the patient, and many other influences.

As proper exercise is as natural to man, and as essential to his welfare, as pure air and healthful food, no one who has his highest interests at heart can afford for a long period of time to do without it. If it is valuable and important in curing acquired and hereditary diseases, how much more valuable is it in protecting the well person against the assaults of disease, and all the evils consequent thereupon !

But circumstances are often potent in preventing us from availing ourselves at all times of that which is for our highest good. Thus disease and weakness are

entailed upon us. To insure permanently beneficial effects in the cure of disease, it is important to secure at least one year of thorough training. In the different seasons, different effects are produced upon the system by the exercise; and a combination of all these results is necessary to a complete result. Fall and winter are favorable to the development of power, and to the production of a certain class of curative effects; spring, with its different liabilities to the development of disease, brings also different and equally valuable effects in the natural method of cure; and summer, when the pores of the skin are open, is particularly favorable to the elimination of disease by this method.

It is probable that about seven years may be necessary to complete an entire organic revolution; but, with a correct system of culture, the processes of Nature will be aided, and the time may be shortened. Supposed physiological facts will be found to be errors when tested by a natural development. The beneficial effects of training are always more evident in the second year than in the first; and the effect of early training is never seen in its completeness until years after. Yet an occasional fast in training, as in eating, does not result unfavorably, and for similar reasons. But, while this is true in regard to training, it is also true that

favorable results are often produced by a very short period of training. A single exercise is frequently felt in its results for a long period of time; and a course of from one to three months may be sufficient to arrest disease, and produce tendencies to healthy action, which becomes permanently established in consequence.

Occasionally a crisis is induced in the early stages of training; and, if the exercise is continued only a short time, the acute action may apparently make the patient feel worse during the whole course: but when the object of Nature is accomplished so far as the present degree of power will allow, though the training has been discontinued for weeks and months, the patient will be improved in health as a natural result of the action thus produced. The result of obedience to natural law, though for a very short time, can but produce favorable results; but he who desires the best results will be constant in his obedience. In the attainment and preservation of health, we reap as we sow.

*POWER ESSENTIAL TO SAFETY IN THE DEVELOPMENT OF
DISEASE.*

The seeds of disease being in the system, they are liable to become developed sooner or later. This may be done either through training, while there is yet

strength to expel the morbid matters without endangering life, or it must come after the system becomes so weak that there may not be sufficient vitality to overcome the disease and rally again. By this system of training, we develop and expel the enemy while the strength is sufficient to prevent prostration and death. In this way, a large proportion of premature deaths might be prevented. But if, for fear of the inconvenience of crises, training is delayed, the system, through organic weakness, may be unable to resist the assaults of disease. The question is, simply, Shall we expel the elements of disease by training while the life-force is sufficient to do it safely and easily, or wait until disease is master of the situation, and means death in its development?

DISEASE; ITS NATURE AND CURE.

The origin and primary meaning of the word "disease" is in itself a history of one of the great errors of the medical profession and popular belief. Dis-ease, the opposite of ease, refers simply to the external and acute symptoms, which affect the feelings and sensations, and not to the underlying and vital cause. Upon this basis, physicians and the people generally have too often mistaken the effect for the cause; and the whole system

of drug medication is little else than a superficial application of remedies to the symptoms, rather than to the cause, of disease. Hence it has been considered most important to relieve pain, and stop the acute action which is only the curative effort of Nature to expel foreign and morbid matters, and equalize and purify the system. Pain, and acute manifestations in general, are only indications of a curative action ; and, instead of attempting wholly to prevent them, we should strive to regulate and assist this action, while we seek to ascertain its cause, and apply the proper method of cure. Those diseases which are painless are most dangerous and fatal ; and, whenever disease is finally triumphant over the vital energies, pain ceases. In cases where powerful medicines are given in order wholly to relieve pain, we have no doubt that death often results. Nature has provided for re-action and relief in fainting and various other processes. We regard it very dangerous to give powerful medicines for the purpose of killing pain.

In this treatise, to adapt it to the popular understanding, we have used the word "disease," meaning the morbid and foreign matters contained in the system, or other organic cause of acute manifestations. It is the cause, not the symptoms, that we propose to treat and cure.

Hereditary disease, germinal and dormant, may re-

main a long time in the system without manifesting acute symptoms ; but it endangers life none the less, and is ever ready to be developed when the system becomes sufficiently weak. If, as our experience demonstrates, by an increase of organic power we succeed in curing disease when the best medical practice has failed, how much more potent must be this natural agent in preventing the development of disease !

In all persons, two general tendencies exist,—two forces, each striving for the mastery ; viz., all those conditions which have for their object the preservation and increase of the life-power on the one hand, and all which tend to reduce and destroy it on the other. By proper training, we obtain that perfect action which secures equalization, invigoration, and organic reconstruction, expels disease, and determines the balance in favor of health and long life.

PRACTICAL RESULTS IN APPLICATION.

However perfect our theory of disease, of its nature and cure, may be, we are aware that its success depends upon its practical results in application. In a large number of cases, including patients of all ages and both sexes, we have treated many diseases, both chronic and acute, with uniform success. The treatment has been

particularly effective in cases of chronic dyspepsia, catarrh both chronic and acute, and diseases of the liver and kidneys. We have treated many cases of this kind, and have never failed to relieve or cure.

Cases of neuralgia of ten or twelve years' standing, which the most skilful physicians of Europe and America have failed to relieve, have yielded to this natural remedy, which secures equalization and organic power. All kinds of nervous diseases and weaknesses caused by an excess of nervous or brain action are radically cured by this method.

We have been very successful in treating many cases of rupture and hemorrhage, when one not comprehending the philosophy and method of application would suppose that the treatment would increase instead of lessening the difficulty. We have had several cases of hernia; and, by increasing the strength of the abdominal muscles and adjacent parts, the tendency has always been to relieve the patient.

In cases of incurable consumption, accompanied by hemorrhage of the lungs, our treatment has operated very favorably in lessening or stopping the hemorrhage, in equalizing the vital forces, and, as we believe, in prolonging life.

Contrary to what may be commonly supposed, we

have been unusually successful in treating female diseases and weaknesses, owing, probably, to the fact that women and girls are unaccustomed to the use of nearly or quite all their power, and to ordinary, heavy manual labor long continued, which injures the tones of the organs, and renders them less responsive to curative agencies. The temperament of females also renders them more sensitive, and more easily invigorated by proper training. The diseases and weaknesses to which females are peculiarly liable, are, moreover, chiefly of a nature resulting from want of equal and sufficient action; while those affecting men and boys more generally result from excessive action. Falling of the womb, and female weaknesses in general, accompanied by the worst forms of uterine hemorrhage, we have, in many instances, relieved and cured.

Hemorrhage can rarely occur unless it is preceded by congestion and weakness of the affected part, and want of equalization and functional vigor. Training equalizes the circulation, removes the congestion, gives power and regulated action to the organs, and prevents hemorrhage by removing its cause.

Incipient consumption may be prevented from further development by this treatment; and scrofula and all forms of unhealthy humors are removed, the morbid

matters being expelled through the skin and natural channels of evacuation. We have no doubt that cancers and tumors may thus be prevented, or, in their early stages, arrested in their development; thus, in such cases, avoiding the necessity of surgical operations. We question whether, in the advanced stages of many diseases, as, for instance, cancer and gravel, this increase of organic power may not produce sufficient action to arrest the formation of and disintegrate the morbid accumulations, and expel them from the system. While we have little or no faith in any direct chemical effect or partial and local action of the organs in the cure of disease, we have unbounded faith in the inherent power of strong and regulated action of all the organs. Man's chemistry kills: God's chemistry cures.

Constipation, indigestion, and irregular circulation,—the causes of piles,—are surely prevented by proper training; and thus they may be readily relieved and cured. Fevers, in their early stages, may be prevented from becoming seated. We have thus treated typhoid and lung fevers, frequently relieving the patient by a single exercise. Pleurisy, and acute pains in general, including headache, toothache, and rheumatic pains, are frequently cured by a single exercise.

Mineral and vegetable poisons long contained in the

system have been developed with all the symptoms of recent introduction, and expelled by training. All kinds of bruises and injuries to the person heal more rapidly, and with less pain, with training, than they could without, owing to the more powerful and equal circulation and vital force.

Thus it is evident that an increase of general organic power and equal action, with obedience to all hygienic laws, is the best and most efficient method of cure. This power can be developed only by a correct system of physical training.

THE TWOFOLD CULTURE OF THE BRAIN.

The brain is, first, a physical organ,—a part of the physical body,—and subject to all the laws of physical culture and growth.

It is, secondly, the organ of the mind,—a combination of numerous mental faculties, depending upon their special action for special mental culture.

A true philosophy of physical culture includes also a true philosophy of mental culture. Hence our system of physical training develops brain-power both directly and indirectly,—indirectly through the increased power and vigor of the body in general, and directly by the especial and vigorous action of certain mental faculties.

The faculties of self-reliance, firmness, concentrativeness, hope, courage, faith, and many others, are directly called into powerful action ; and, in accordance with the laws of all organic growth, they must and do increase in power.

While these faculties are called into direct action during training, the brain as a whole, and every part of it, partakes of the general equalizing and invigorating influences affecting the whole body. The brain, as a whole and in its several parts, being the organ of the mind, the physical agent through which the several faculties are manifested, and subject to all the special laws of culture and growth recognized by phrenologists, is none the less a part of the physical body, depending equally upon its general laws of development, growth, and culture. Hence whatever will develop the body as a whole harmoniously, restraining abnormal development where it has become excessive, and enlarging the organs where there is a deficiency of size or power, will exercise the same equalizing influences upon the brain. In this manner, we secure a constant and powerful tendency to develop deficient intellectual and moral conditions, as exhibited in partial or complete idiocy ; and to remove, by equalization, that excessive and abnormal action of the brain, or of its several organs, which results in monomania or in insanity.

Insanity is *unhealthiness*, whether pertaining to the muscles, the vital organs, or the brain. Hence, if, physiologically, the brain is made healthy, the mental manifestations are no longer warped and distorted by the imperfections of their physical medium ; and those faculties and passions, which, in a weak and debilitated condition of the general system, act abnormally, making man the slave of appetite and indulgence, while none the less powerful, become, as a result of proper physical training, natural and healthful in their manifestations. Violence and crime could never occur in a properly balanced condition of brain and body ; and a healthful bodily condition is essential to healthy and normal mental manifestations. Crime, which always results from an unbalanced, and consequently unhealthy, mental condition, is really a condition of insanity. Hence murder cannot be prevented by hanging the murderer. The judicial act is really a greater crime than the act of the judicial victim. Punishment should never be given in vengeance, but simply as a protection to society and individual rights ; and should be as lenient as possible. The proper school for idiots, the insane, criminals, and all who manifest unhealthy and abnormal mental action, is a school of physical training. This is pre-eminently true of children, who tend to abnormal mental mani-

festations. Nothing can be more cruel or unjust than the application of corporal punishment to children in schools or at home. It is only by a proper method of physical culture that these diseased conditions can be removed, equal action established, and a permanent cure effected. The application of force as punishment can only result either in breaking the spirit and dwarfing the manhood and womanhood by weakening the power, or in increasing the desire to do evil, the appetite for crime. In this way, criminals are made. But, however defective or unbalanced the mental condition may be, the tendency of a true physical culture must be toward a healthy and normal development,—a symmetry of the mind as well as of the body. Hence the fundamental thing to be done is to obtain a perfect physical development and culture.

The chief difficulty in delineating character phrenologically has arisen from the fact that the natural mental manifestations were always modified by the influence of a weak or diseased body. Hence the phrenologist was compelled to delineate character pathologically; and a very nice discrimination was required. Thus a proper system of physical training, whereby the body, and the brain as a physical organ, may be naturally and harmoniously developed, lies at the basis of a true system of phrenology.

EDUCATION AS AFFECTED BY PROPER TRAINING.

In addition to this general culture of the brain, we must also recognize the influence of the special action of the individual faculties. We have said that certain faculties are directly exercised in the process of training. It is also true that all the faculties, as a result of equalization and invigoration, are more distinct and vigorous in their individual action. Our systems of education should be adapted to the natural order of human development; but, while infancy and youth are the periods of vital development and physical growth, our common-school system wholly or largely ignores physical culture, and stimulates the brain to a forced and unnatural development. In thus violating natural law, it weakens the vitality and life-power in general; and, by first maturing by unnatural stimulation that part which is matured last in the order of Nature, it becomes the direct and potent cause of consumption and nervous diseases among us. In New England, where this forced and unnatural system of culture is most complete, consumption and nervous diseases are largest upon the list of mortality. Is it the best medical science, and most enlightened educational system, of the last half of the nineteenth century, which would thus sow the seed of

lung and brain weakness and disease in the primary school, and treat the effects of its germination and development by sending the adults to Europe or the South, or dosing them with vile compounds of cod-liver oil and whiskey ? A radical change is needed in our system of education, whereby physical culture shall be essentially the great object of primary-school education.

SUMMARY AND CONCLUSION.

We thus see that a proper system of physical training, tending to harmonious development of body and mind, will not only revolutionize our systems of cure, but will radically affect methods of education, legislation, and even theology itself; for, in health and strength, old prejudices and opinions resulting from diseased bodily and mental conditions will be swept away, and all things will be made new. Truth cannot be clearly comprehended by a weak and disordered brain. Hence the absolute necessity of regeneration, radical, thorough, and complete: man must indeed be "born again." False systems of religion, originating in and founded on a diseased and undeveloped body and disordered mind, must pass away; and a regenerated, developed, and purified body and mind will be fitted to receive the clear light of truth.

Moral and social reforms, intellectual growth, religious progress, which shall be effective, and prove permanent, must be based upon physical culture.

Much can be done in a single generation, though that may not be sufficient to effect the complete result. Prevention of physical and mental disease is more potent than cure. Hence we must begin at the foundation. A true system of bodily culture is, in its application, the best possible preparation for those who would become parents. Neither man nor woman should enter into this holy relation without the most perfect preparation,—a pure and noble mind in a purified, strong, and healthy body. A proper diet, and a correct system of physical culture, is thus the most important element in its relations upon both parent and child. We have had in our practice a number of women, who, previous to training, had been weak, sickly, in some instances unable to perform the maternal function, and who had never borne a healthy child; yet after a few months of this preparation, continued during the period of pregnancy, labor has, in all cases, been comparatively easy and of short duration, and the children have, in every instance, been healthy and strong. In philosophy, it is evident that the equalizing and invigorating effects of this exercise must produce these most desirable results.

In practical application, the effect has been uniformly of this nature. How important is this culture to every prospective mother in America! How potent must be its influence upon coming generations!

Myself an invalid when I commenced the demonstration of this new theory of cure, broken down in health, and given up by physicians to die, I was yet prepared, by many years of study in phrenology and physiology, to look for cure to the simple application of natural law. I may perhaps be pardoned for saying that the result, in my own person, has been all that I claim in its application to others. Whereas I was weak, I am now strong; being then sick, I am now well. These general results are uniform in our practice. Therefore we feel justified in presenting to the public these views, the result of twenty years of study and ten years of the most thorough demonstration, comprising, in brief, our idea of a science of physical culture; comprehensive and revolutionary in its claims, it is true, but we believe them to be justified by its practical results.

EXPLANATION.

This system of exercise and cure contains essentially three elements, under which are comprehended other minor peculiarities:—

1st, It is a true exercise.

2d, It is a true developing agency.

3d, It is a true method of cure.

Being a true exercise, it is necessarily a true developing agency ; being a true exercise and a true developing agency, it is necessarily a true method of cure ; and a true exercise, a true developing agency, and a true method of cure, necessarily involve the utmost of strength and health.

The object of the system is, primarily, to secure strength at the vital centres ; to develop power in the vital organs, the spine and brain ; and, subordinately, to secure an harmonious and symmetrical development of the muscular system. Other methods, on the contrary, tend chiefly to muscular development, and do not especially add to the vital power. If the muscular system is developed to an excessive degree, it robs the vital and nervous systems of their force, and prepares the way for disease.

We secure this uniform development of power and health by the scientific application of the law of mechanical action, through the use of machinery adapted to that purpose. Why should not machinery be adapted to this high purpose ? This is pre-eminently the age of invention and discovery. Intelligent labor was never

before so honorable. Brain labor is fast superseding physical drudgery. By the invention and use of machinery, the civilized world is fast being revolutionized and reconstructed. Every thing is being done better and more profitably by machinery than ever before. Productive energy is increasing with the speed and capacity of mechanical action. But commerce, agriculture, and manufactures must not monopolize the use of machinery: we propose to apply it directly to the culture of man, physically and mentally. The physician and teacher, not less than the mechanic and farmer, must call machinery to their aid. With all this increase of capacity for labor, time becomes much more valuable. Men cannot afford to occupy hours in securing exercise through the usual forms of manual labor or the old systems of gymnastics, when better exercise can be obtained in ten or fifteen minutes, two or three times a week, by the use of machinery.

In application, the order of development of strength and health by this agency may be stated thus:—

First, It is an equalizer.

Secondly, It is an invigorator.

Thirdly, It is a reconstructor of the tissues of the body and the brain.

That it accomplishes what we claim for it is attested

by the practical results of its application. It is particularly commended to the attention of the public,—

1st, Because it is radically different in philosophy, machinery, and application, from any thing heretofore known in gymnastics or other modes of exercise and cure.

2d, It is an original, scientific system of mechanical action, or motion, adapted to the growth and development of man in his normal condition, and as the curative agency of his abnormal condition,—equally applicable to men, women, and children; making the weak strong, and permanently curing disease and deformity.

3d, The system, in its practical application, is *complete*; reaching every organ and fibre from head to foot; arousing all those parts which are weak or diseased; strengthening and preventing disease in the former, and expelling it from the latter; thus securing strength, health, and symmetry by the same process.

4th, It is *exact*. No known mechanical law is violated, and all are obeyed; making the best possible use of all existing power as an invigorating, reproducing health and strength agency; surely guarding against the liabilities to strain and exhaustion peculiar to those systems of exercise which violate mechanical laws.

5th, It is *co-operative*; in each exercise calling into

regular, harmonious action as many parts as possible; the strong supporting the weak, and all together putting forth their power, proportionately distributed, but combining in one co-operative effort. This is the best and only safe manner of exercise for all classes, weak or strong, sick or well, old or young.

6th, It is *graduated*; in all the exercises, carefully adapting the weights and the duration of the exercise to individual needs, rendering it perfectly safe and agreeable even in the most delicate cases. None are permitted to attempt the use of weights beyond their power of thorough mastery, nor for a longer time than is necessary fully to call forth their latent power; thus preventing exhaustion, and uniformly invigorating.

7th, It is *properly applied*. Each patient is personally superintended by a competent instructor specially educated and experienced; while the apparatus, in design and construction, combines simplicity and completeness in the highest degree, thus insuring safe and efficient treatment.

8th, It invokes *all hygienic agencies*, especially pure air, pure water, healthful food, sun, air, and water-baths, abundant sleep, rest, and recreation.

9th, It is *successful in practice*; accomplishing results in strengthening the weak, and permanently cur-

ing disease, heretofore unknown either in physical culture or medicine.

The first effect of these exercises is to bring the individual into proper form and shape, so that there shall be no unnatural mechanical obstructions to the free and normal exercise of his organs.

The second is to create functional vigor, and thus to expel disease, and prepare for development.

The third is to reconstruct and build up the tissues of the organs, and cause an absolute organic growth.

The fourth is to increase the healthy action and power of the brain and mind correspondingly with that of the body. Consequently, all the elements of a perfect manhood are increased, including not only intellectual vigor, but moral power and social purity. For, as certainly as disease favors an abnormal condition of the mind as well as the body, so surely does an increase of health and strength become a promoter of virtue.

MANUAL OF EXERCISES.

GENERAL REMARKS.

IN the training of an individual, or the treatment of a patient, we are particularly desirous of explaining the philosophy and practical application of our system. We consider an intelligent co-operation of the patient indispensable to secure the best results in each case. We also desire to educate the person, so that he may be independent of our personal attention after health is once established, and able to train himself, preserve what power he has gained, and make still further progress. He is also thus enabled to apply the exercise to family and friends when circumstances render it difficult or impossible to secure the services of an experienced instructor and physician. Thus our mode of practice is comprehensive and liberal, aiming to secure permanent strength and health on the basis of the patient's individual action and independence; believing fully that what is best for the patient is best for the physician. We have therefore deemed it well to append to this treatise a Manual of Exercises, giving general directions for the use of the apparatus in training. Of course, these directions can only be general in their

character, as the application must be as various as the conditions of the patients.

The complete system, in application, comprises four forms of exercise,— the pulleys, lifting, the heavy dumb-bell, and the light dumb-bells. Our experience proves that the lifting is of the chief importance: it is the vertebra of the system. The other exercises are comparatively unimportant, though valuable, in some cases, in connection with the lifting; but in all cases of severe invalidism, where the patient is weak or nervous, and in the training of women and children, lifting should be, usually, the only form of exercise. It is the one which alone obeys fully the law of co-operative action. As a rule, perfect lifting is perfect exercise.

In the average number of cases, an exercise three times a week is preferable: in some instances, a daily exercise, while the pupil is on light weights, is allowable. In using heavy weights, a daily exercise would be too frequent. In many instances, particularly in the training of women, an exercise twice a week secures the best results. In all cases where the instructor is in doubt about a greater or less amount of exercise, let him choose the less.

In the minor exercises, care should be taken to ren-

der the action as general and co-operative as possible. The whole body should be brought into action ; not simply the limbs or a portion of the body. The instructor should remember that people differ in their degree of hopefulness, courage, and pertinacity. Hence some require to be urged forward beyond their inclination ; while the majority require restraint rather than urging. In the regular order of a complete exercise, we commence with

THE PULLEYS.

This apparatus comprises a small platform, resting on the floor, on which the patient stands ; which is varied in height, according to the height of the person, by means of adjustable blocks ; thus adapting it to men, women, and children of all sizes. At the back of the platform are inserted upright posts, to which are attached a series of wheels, varying for different widths of shoulders. The weights, varying to the half-pound, are attached, by means of straps passing over the pulleys, opposite the shoulders. The straps are varied in length, by means of adjusting buckles, for different lengths of arms. An upright board rises in the centre, a little forward of the pulley-posts.

The patient stands upright upon the machine, exactly

in the centre between the pulley-straps, with his back, shoulders, hips, and heels against the upright board, slightly inclined forward from the perpendicular. His shoulders should be of equal height with the straps which pass over the pulleys. He takes in each hand the wooden handle attached to the straps best suited to his width between the shoulders, places his back firmly against the board, bends slightly with the knees to secure a co-operative action of the whole body, his straps being long enough to allow his elbows to rest just forward of his hips. He then pushes out the weights, which, in the first effort, are very light, bringing his arms to a horizontal position, straightening his elbows and wrists fully, and, at the same time, straightening the knee.

Commencing with a weight on each side not more than half or two-thirds as heavy as he can raise thoroughly, he lifts in this manner four times; at each succeeding effort making an addition to the weight lifted. In every case, the weights should be equal on both sides; and in no case should the same weights be repeated during the same exercise. In grading from the lowest to the highest weight, the first addition should be the largest, and the last the smallest, in all cases. The action should be slow, gradual, and thorough. The

pupil should never attempt weights beyond his power of thorough mastery. Commencing fully within his power, in each succeeding day on which he exercises his highest weight should be slightly increased, seldom by more than two pounds, usually by a single pound or half-pound. This should be continued until the attendant instructor perceives, by his manner of pushing, that he has approached his present maximum degree of power; when he should fall back ten pounds or more, and, on succeeding days, review the weights in the same manner. In this and every succeeding review, he will probably surpass considerably his highest weights upon the preceding grade. In this manner the process should continue. The pulleys are simply a preparatory exercise, and should never be used to the point of exhaustion. A short rest should be taken between the successive efforts, and between this exercise and

LIFTING.

The lifting apparatus comprises a substantial table, through the centre of which passes an upright rod, upon which the weights rest. This rod is raised or lowered by means of a screw, to obtain the exact height for the most perfect leverage for each individual. The screw passes through a nut resting upon a rubber

ring, which is attached to a spring resting upon the table. Between all the joints of the machine is inserted an artificial cartilage of rubber, which, with the spring, prevents sudden and abrupt action or strain, and brings the apparatus in harmony with the individual. The lifting-bar, which, with all the apparatus, is patented, is so adjusted, that the hands, acting in opposite directions, receive the weight upon a mathematical line passing through the centre of its bearing; thus securing perfect adjustment.

In lifting, the patient stands upon rubber plates attached to the platform of the table, directly over the upright rod, which is surmounted by an eye, or socket, containing a pivot directly over the centre of the weight. Through this socket passes the lifting-bar,—a wooden cross-piece padded with buckskin, adapted to the form of the hand, and so adjusted, that the pupil, grasping the handles as he stands astride the bar, with his spine directly over the rod, his shoulders in a perpendicular line with the hips and feet, and his head thrown back, takes the weight upon a straight line passing along the handle, and through the centre of the pivot on which the handle is pressed. Thus the mechanical law relating to the adjustment of the weight to the body by means of the cross-piece is ful-

filled, and the weight bears equally on every part of the body. It is important for all these conditions to be fulfilled, that the effect upon the body may be perfect and complete. Our experience has demonstrated that the relative positions of the handle, pivot, socket, and rod, with the body, cannot be in any way changed with equally beneficial curative results.

The proper height of the rod, being ascertained upon the first exercise, should be secured at each succeeding exercise by exact measurement. The weight, resting by means of the iron nut upon the spring in the centre of the table, should be raised two or three inches clear of the spring when the body is erect, and the knees fully straightened. The greatest care should be observed in obtaining the correct position and adjustment of the body, no less in lifting the lighter than the heavier weights. The ankles should be about opposite the rod, the foot supporting the forward hand slightly in advance of the other. The spine should be erect; the top of the shoulders well set back; the centre of the chest fully rounded out; the feet, hips, and shoulders in a perpendicular line: and the weight should be raised very slowly, followed by the spring, until a complete co-operation of all parts of the body has been attained; when the weight is raised free from the spring, and

becomes a perfect dead-weight. Thus we secure all the advantages, and none of the disadvantages, of perfect spring and dead-weight lifting. There is complete adjustment, thorough co-operation.

The position brings the body as nearly as possible into perfect shape; the manner of lifting distributes the weight co-operatively over the whole body, giving each organ and muscle its proper action, and developing the whole harmoniously. Commencing, as in the pulleys, with a weight not more than half as large as the pupil is to raise at last, he should lift, usually, four times. The first addition should be one-half the total amount to be added; the second, about two-thirds of the remainder; the third and last, always the least. Between the successive efforts of lifting, as in the pulley-exercise, the patient should take sufficient time to rest, varying from one to five minutes or more, according to the weight lifted; for invigoration follows from successive periods of action and re-action, not from actions following each other in quick succession. This would tend rather to exhaust; but the exercise, as a whole, should, in every instance, leave the pupil invigorated, not exhausted.

Commencing, in the first exercise, with a weight fully within the control of the patient, an addition of from

five to ten pounds may be made on each succeeding exercise-day, until the maximum weight is considerably increased, and the attendant instructor perceives, from the manner of lifting and symptoms of the patient, that he should proceed no farther at present ; then, on the succeeding exercise, his highest weight should be reduced about one hundred pounds in most cases, and he should again grade up as before. In some instances, it may be well to grade downward five or ten pounds each day, reversing the process of the ascending grade to the extent of fifty or one hundred pounds. When a crisis is developed, the weights should be varied according to the symptoms and condition of the patient. No invariable rule can be given to apply in every case. The treatment must be as varied as the cases treated. To produce more decided action, the pupil should lift rather quicker, and with shorter rod. The amount of action is determined by the weight lifted ; but the manner of lifting determines the kind of effect.

Heavy weights should not be lifted too often. On weights which tax the pupil's power severely, the system of gradation should be varied, so that light weights should alternate with heavy from day to day ; and absolute gains should not be made oftener than once in two or three weeks. Very heavy weights

should not be attempted as often as this. In training, one cannot be too careful in the adjustment of the apparatus and the manner of exercising.

THE HEAVY DUMB-BELL.

At the completion of the lifting exercise, the pupil should rest a short time; after which, if a person of good vitality and sufficient power, he may be introduced to the heavy dumb-bell exercise. Greater danger arises from the improper use of dumb-bells than from any other part of our apparatus. We object wholly to the manner in which they are used in the ordinary gymnasiums. The dumb-bell patented and in use by us is a graduating bell, from which any weight may be obtained, by half-pound grades, from six pounds to a hundred and seventeen. Each dumb-bell is accompanied by a duplicate handle and three sets of screws, so that two dumb-bells may be made at the same time, of equal or varying weights. In the use of the dumb-bell, the movements should be slow and steady, and the action should perfectly fulfil the mechanical law of the exercise.

The dumb-bell is placed on the floor by the side of the pupil, parallel with the direction of his feet. The foot nearest the bell should be advanced a short distance, the other remaining opposite the bell. The pupil

then stoops to raise it, without bending the spine, by means of the leverage of the lower limbs. He raises the bell in one hand, allowing it to extend downward by the side. This is the first motion. The second is to raise the bell slowly to the shoulder, keeping it in a horizontal position near the body, and allowing the elbow to slide back by the side. Then, by a thorough motion of the whole body, moving upon the hips and ankles, the bell is steadily raised to the full perpendicular extent of the arm. During the exercise, the eyes of the pupil should be fixed upon the bell, that he may preserve a proper balance between it and his body. These motions are now reversed. The bell is slowly lowered, first to the shoulder, then to the side, the arm extended downward, and the spine erect; then, without bending the spine, by the action of the hips, knees, and ankles, it is placed upon the floor.

Commencing with a weight fully within the pupil's power, lifting the dumb-bell only once with each hand at each exercise, commencing always with the weaker hand, that it may lift as heavy weights as the stronger, a regular gradation should be followed, of one pound or a half-pound each day; going back and reviewing when a good degree of power is attained. In some cases it may be well to repeat this exercise, as in the pulleys and lift-

ing; grading each day in the same manner. No one should ever use a dumb-bell which he cannot fully control.

THE LIGHT DUMB-BELLS.

A series of exercises with light dumb-bells, weighing from two to six pounds for women and children, and from six to fourteen pounds for men, completes the course for each day.

1st, The pupil stands erect, the feet on a line directly beneath the shoulders, the toes turned out, and takes a dumb-bell in each hand, extending them downward by the side. He then raises them simultaneously, and without sudden or violent motions, to the perpendicular position above his head; the arms being parallel. Then, keeping the spine erect, he bends with his hips and knees, bringing the lower part of the body nearly to the floor, and at the same time bending the elbows, and bringing the dumb-bells to his shoulders. This action is then reversed; the pupil rising, and raising the bells simultaneously above his head. These motions are repeated three times, and the dumb-bells are then lowered to the sides.

2d, The pupil stands in an erect position, and advances one foot in front of the body, with dumb-bells in his

hands extended by his side. He then raises them to his shoulders, carrying the body back with a motion of the hips and knees. The arms are then advanced horizontally before, to their full extent, the body swaying forward with a free motion of the hips, knees, and ankles. This motion is then reversed, and the whole is repeated three times.

3d, The pupil stands erect, feet on a line beneath the shoulders, toes turned out, dumb-bells in the hands extended downward by the sides. The hands are then carried forward and upward, and over the shoulders, the body bending backward. They are then carried in a parallel, circular sweep, with a forward bend of the body, down in front and back by the side to the full extent of the arms. This motion is then reversed, and the whole repeated three times.

4th, The pupil takes position as before. The arms, fully extended, pass outward from the sides in opposite directions, with the body erect, in a circular sweep, until they converge, and the ends of the dumb-bells meet above the head. This action is reversed until the opposite ends of the dumb-bells meet behind the back. The whole movement is thrice repeated.

5th, The pupil takes position as before. The dumb-bells are held, one in each hand; the arms extended

downward, with the bells horizontal and parallel in front of the body. Then, by a motion of the body, first downward and forward to one side, then upward to the other side, the bells are carried, the one to the full perpendicular extent of the arm above the head, and the other to the shoulder on the same side of the body. This motion is reversed, and the whole repeated three times. In all these exercises, the action should be moderate, exact, with free motions of all the joints and levers of the body ; and should never be carried to the point of exhaustion.

The light dumb-bell exercise is of the least importance, and, in many cases, would be injurious instead of beneficial. As in all the exercises, the experience of the instructor will enable him to determine whether or not they should be used. Their use is not so often indicated in the case of persons who are of active temperament, tall and slender, as in those who are phlegmatic, robust, and stout. Invalids and women and children should rarely or never use them.

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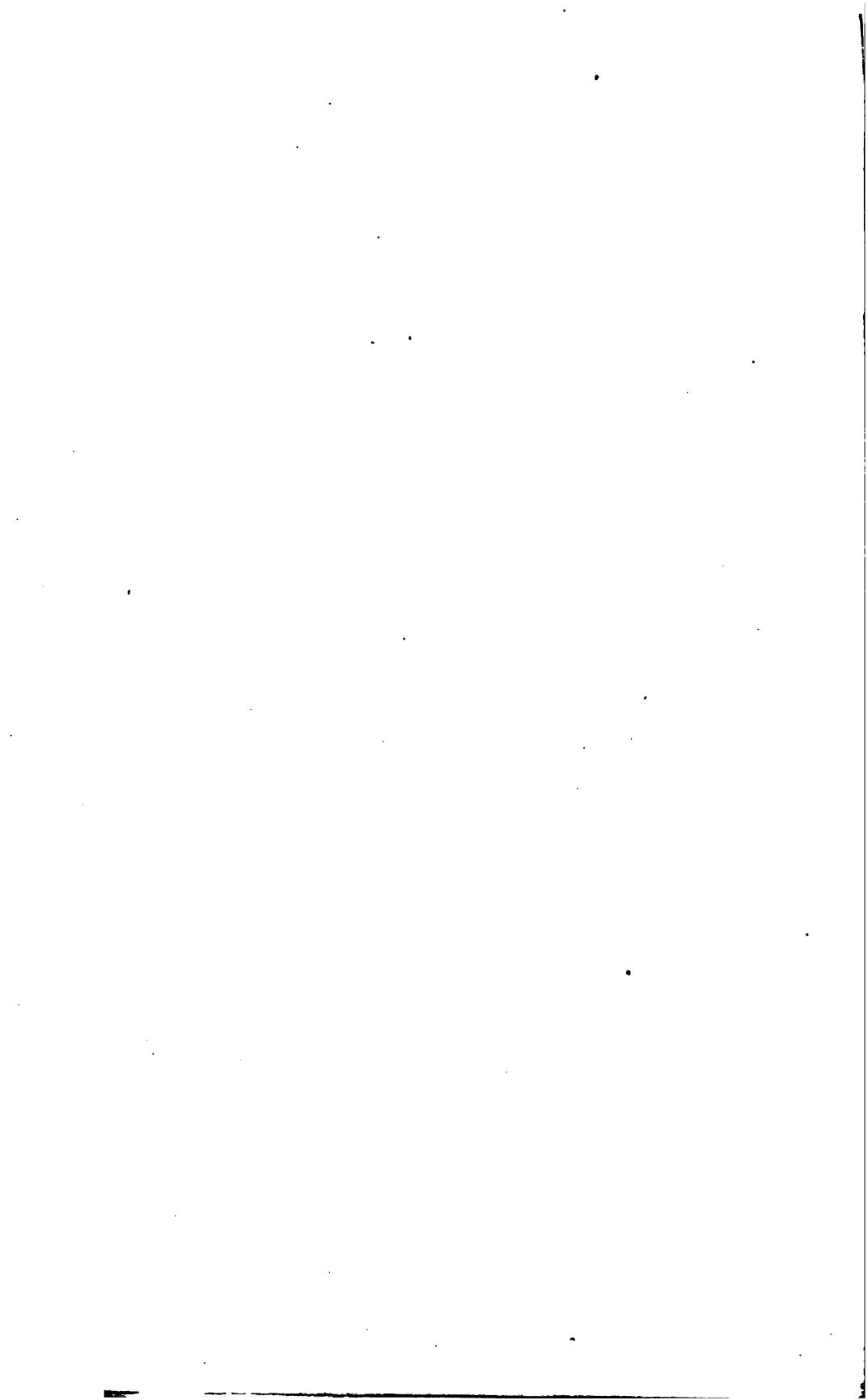
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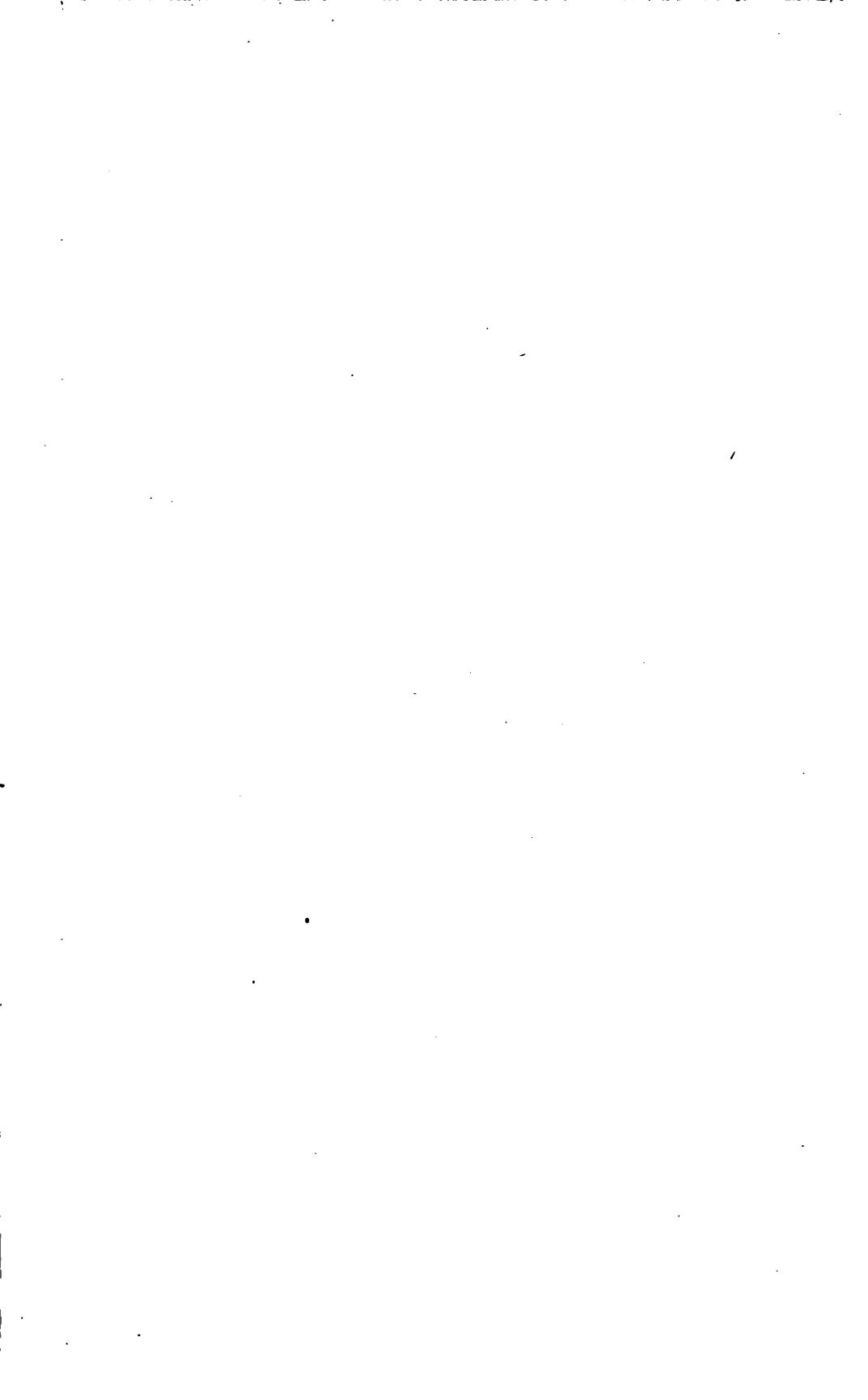
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